

CLAIMS

1. A portable communication device with a virtual image display, comprising:

a hand held frame having a first end and a second, opposite end;

an earphone speaker for projecting sound mounted in the first  
5 end of the frame; and

a virtual image display system including a display and at least  
one optic through which a user looks to view an enlarged virtual image  
of information depicted on the display, the virtual image display system  
being mounted in the second end of the frame wherein at least one of the  
10 earphone speaker and the virtual image display system are mounted on  
the frame for movement to increase the distance between the earphone  
speaker and the optic through which the user looks to view the image  
when the device is in use.

2. A portable communication device with a virtual image display as recited in claim 1 wherein the earphone speaker is mounted on the frame for movement.

3. A portable communication device with a virtual image display as recited in claim 2 wherein the earphone speaker is mounted on the frame for sliding movement.

4. A portable communication device with a virtual image display as recited in claim 1 wherein the virtual image display system is mounted for movement on the frame.

- 16 -

5. A portable communication device with a virtual image display as recited in claim 4 wherein the virtual image display system is mounted for pivotal movement on the frame.

6. A portable communication device with a virtual image display as recited in claim 1 wherein both the virtual image display system and the earphone speaker are mounted for movement on the frame.

7. A portable communication device with a virtual image display as recited in claim 6 wherein the virtual image display system and the earphone speaker are connected such that manual movement of one will automatically cause movement of the other.

8. A portable communication device with a virtual image display as recited in claim 7 wherein the virtual image display system is mounted for pivotal movement on the frame and the earphone speaker is mounted for sliding movement on the frame.

5 9. A portable communication device with a virtual image display as recited in claim 1 including a switch mounted on the device, the switch having a right position and a left position; and a controller responsive to the switch being moved from the right position to the left position to invert the image depicted on the display so that the top of the image is adjacent to a first side of the frame when the switch is in the right position and the top of the image is adjacent to a second side of the frame when the switch is in the left position.

10. A portable communication device with a virtual image display as recited in claim 9 further including a first microphone

- 17 -

5 mounted on the first side of the device and a second microphone mounted on the second side of the device, said controller being responsive to the switch being in the right position to disable the first microphone and enable the second microphone and the controller being responsive to the switch being in the left position to disable the second microphone and enable the first microphone.

11. A portable communication device with a virtual image display, comprising:

a hand held frame having a back wall, a front wall with one or more keys, a first end and a second end;

5 an earphone speaker for projecting sound mounted in a first end of the frame;

10 a virtual image display module including a display and at least one optic through which a user looks to view an enlarged virtual image of information depicted on the display, the virtual image display module being mounted on the second end of the frame for pivotal movement between an in-use position and a storage position in which the optic is covered by the back wall of the frame.

12. A portable communication device as recited in claim 11, wherein the earphone speaker is movably mounted in the first end of the frame to increase the distance between the earphone speaker and the virtual image display module.

13. A portable communication device as recited in claim 11 including a housing portion for the earphone speaker to form an earphone module that is movably mounted in the first end of the frame to increase the distance between the speaker and the virtual image display module; and a linkage connected between the virtual image

5

- 18 -

display module and the earphone module, the linkage moving one of the earphone module or the display as a user moves the other of the modules from its first position to its second position.

14. A portable communication device as recited in claim 11 including a switch movable between a first and second position and a controller responsive to the position of the switch to invert the image depicted on the display so that the device may be used with the earphone speaker adjacent the user's right ear and the image may be viewed by the user's right eye or the device may be used with the earphone speaker adjacent the user's left ear and the image may be viewed by the user's left eye.

15. A portable communication device as recited in claim 11 including at least one wire extending through the pivot to the display to connect the display to the battery and/or a source of video information.

16. A portable communication device with a virtual image display comprising:

a hand-held frame having a first aperture in a first end of the frame, a second aperture in a second, opposite end of the frame;

an earphone module mounted on the frame in the first aperture for slidable movement therein between first and second earphone positions;

a virtual image display module mounted on the frame in the second aperture for pivotal movement between first and second position, the virtual image display module having a display and an optical system with at least one optic through which the user looks to view a virtual video image of information depicted on the display wherein the optical system projects a magnified image of the displayed information that

- 19 -

appears to be at a greater distance from the user than the display module;

15 and

a linkage connected between the virtual image display module and the earphone module, the linkage moving one of the earphone module or the display module from its first position to its second position as a user moves the other of the modules from its first position  
20 to its second position.

17. A portable communication device with a virtual image display as recited in claim 16 wherein said linkage includes a pair of elongated members, each having a first end coupled to the earphone module and having a second end coupled to the virtual image display module such that the second end of each elongated member is pulled in  
5 a direction generally away from the first aperture as the virtual image display module is moved from a first, extended position to the second, storage position to slide the earphone from a first, extended position to a second, storage position.

18. A portable communication device as recited in claim 16 including a switch movable between a first and second position and a controller responsive to the position of the switch to invert the image depicted on the display so that the device may be used with the earphone  
5 speaker adjacent the user's right ear and the image may be viewed by the user's right eye or the device may be used with the earphone speaker adjacent the user's left ear and the image may be viewed by the user's left eye.

19. A portable communication device with a virtual image display, comprising:

- 20 -

a hand held frame having a first end and an opposite, second end  
and a first side and an opposite, second side;

5 an earphone speaker for projecting sound mounted in the first  
end of the frame;

a virtual image display system having a display depicting an  
image and at least one optic into which the user looks to view a virtual  
image, the optic being located at the second end of the frame;

10 a switch having a right position and left position; and

a controller responsive to the switch being moved from the right  
position to the left position to invert the image depicted on the display so  
that the top of the image is adjacent a first side of the frame when the  
switch is in the right position and the top of the image is adjacent the  
15 second side of the frame when the switch is in the left position.

20. A portable communication device as recited in claim 19  
further including a first microphone mounted on the first side of the  
device and a second microphone mounted on the second side of the  
device, said controller being responsive to the switch being in the right  
5 position to disable the first microphone and enable the second  
microphone and the controller being responsive to the switch being in  
the left position to disable the second microphone and enable the first  
microphone.

21. A portable communication device as recited in claim 20  
wherein said first and second microphones are respectively mounted on  
the first and second sides of the frame.

22. A portable communication device as recited in claim 20  
wherein said virtual image display system is mounted in a module  
housing coupled to the second end of the frame and said first and second

- 21 -

5 microphones are respectively mounted on the first and second sides of  
the module housing.

23. A portable communication device as recited in claim 22  
wherein said module housing is pivotally mounted on the second end of  
the frame to allow the virtual image display system to be moved from an  
in-use position to a storage position.

24. A portable communication device as recited in claim 23  
wherein a surface of said frame covers the optic when the module  
housing is in its storage position.

10  
15  
20  
25  
30  
35  
40  
45  
50  
55  
60  
65  
70  
75  
80  
85  
90  
95  
100  
105  
110  
115  
120  
125  
130  
135  
140  
145  
150  
155  
160  
165  
170  
175  
180  
185  
190  
195  
200  
205  
210  
215  
220  
225  
230  
235  
240  
245  
250  
255  
260  
265  
270  
275  
280  
285  
290  
295  
300  
305  
310  
315  
320  
325  
330  
335  
340  
345  
350  
355  
360  
365  
370  
375  
380  
385  
390  
395  
400  
405  
410  
415  
420  
425  
430  
435  
440  
445  
450  
455  
460  
465  
470  
475  
480  
485  
490  
495  
500  
505  
510  
515  
520  
525  
530  
535  
540  
545  
550  
555  
560  
565  
570  
575  
580  
585  
590  
595  
600  
605  
610  
615  
620  
625  
630  
635  
640  
645  
650  
655  
660  
665  
670  
675  
680  
685  
690  
695  
700  
705  
710  
715  
720  
725  
730  
735  
740  
745  
750  
755  
760  
765  
770  
775  
780  
785  
790  
795  
800  
805  
810  
815  
820  
825  
830  
835  
840  
845  
850  
855  
860  
865  
870  
875  
880  
885  
890  
895  
900  
905  
910  
915  
920  
925  
930  
935  
940  
945  
950  
955  
960  
965  
970  
975  
980  
985  
990  
995